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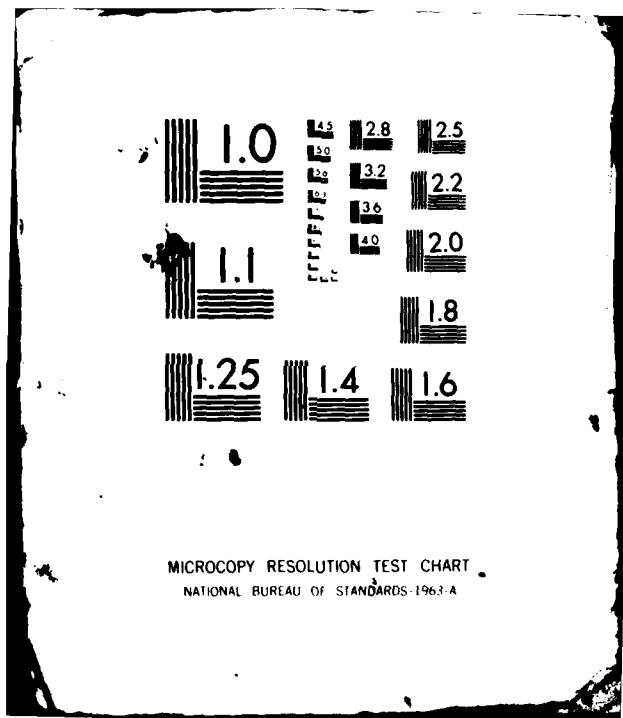
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**The Rand Corporation
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MODERNIZING NATO'S LONG-RANGE THEATER NUCLEAR FORCES: AN ASSESSMENT

Meeting in December 1979, the NATO Foreign and Defense Ministers decided to modernize NATO's long-range theater nuclear force (LRTNF) by deploying, in Europe, 108 Pershing II medium-range ballistic missile (MRBM) launchers and 464 ground-launched cruise missiles (GLCMs). NATO Secretary General Joseph Luns announced that these systems would be based in the Federal Republic of Germany (FRG), Italy, and the United Kingdom, and possibly Belgium and the Netherlands. Attaching "great importance to the role of arms control in contributing to a more stable military relationship between East and West and in advancing the process of detente," the Ministers emphasized that, in parallel with the deployment decision, they wished to continue arms control efforts designed to achieve "a more stable overall nuclear balance at lower levels of nuclear weapons," to involve theater as well as strategic nuclear forces.¹ A Special Consultative Group was created to continue work on the arms control aspects of the LRTNF issue.

With this decision NATO's member states sought to resolve an issue that had been raised nearly three years before, and that had commanded increasing amounts of attention ever since. West German Chancellor Helmut Schmidt outlined the problem in general terms in his oft-cited 1977 address to the International Institute for Strategic Studies. Schmidt asserted that

SALT codifies the nuclear strategic balance between the Soviet Union and the United States. . . . In Europe this magnifies the significance of the disparities between East and West in nuclear tactical and ^{tional} weapons.²

The most vexing and bothersome of these disparities lay in the realm of theater nuclear weapons. As Schmidt noted in May 1978,

¹ *Strengthening NATO's Defense*, Department of State, Current Policy No. 122, December 12, 1979, p. 2.

² *Survival*, January/February 1978, pp. 2-10.

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We are indeed concerned about the growing imbalance of medium-range ballistic missiles in the European theater with the deployment of the SS-20. . . . Intra-European missiles are overwhelmingly strategic and could be brought to bear as a means of pressure in the European political context.³

Schmidt stated his desire to see this imbalance corrected through arms control. Should that fail, however, it had to be corrected, presumably by deploying new weapons.

In keeping with Schmidt's twin dicta, the December 1979 NATO Communiqué called for arms deployments but also for new initiatives in theater arms control. Indeed, the Ministers from Belgium and the Netherlands, representing two of the countries designated to provide bases for the new missiles, expressed reservations about the armament plan. Each withheld full endorsement of the deployment decision pending a review of the situation at some future date when progress on the arms control front could be assessed.⁴ The representative from Denmark went still further, proposing that NATO postpone the decision for six months.⁵

That despite such reservations NATO achieved near unanimous consensus on the deployment decision bears witness in part to the careful groundwork of the High Level Group and the Special Group, created to consider, respectively, the deployment and arms control aspects of the issue. But much of the underlying debate also may have been overridden in the final months before the December meeting by the sensed importance of a consensus on the issue. With the neutron bomb debacle fresh in mind, the LRTNF issue acquired enormous symbolic significance as a test of NATO's collective resolve.⁶ By December 1979,

³ *International Herald Tribune*, Paris, May 22, 1978.

⁴ In September 1980, the Belgian government announced its decision to accept deployment of 48 long-range theater nuclear missiles if Soviet-American talks on missile reductions fail. See "Belgians Agree to Take U.S. Nuclear Missiles," *Los Angeles Times*, September 20, 1980.

⁵ "Nuclear Missiles for NATO Europe," *Atlantic Community News*, December 1979, p. 1.

⁶ For an assessment of some of these pressures, see Richard Burt, "Missiles for Europe Now, or Talks with Moscow First?," *The New York Times*, October 24, 1979.

the issue had acquired a degree of momentum that unquestionably influenced the course of the meeting itself.

Full implementation of the decision lies a few years off. In the interim, development of the systems continues in the United States while preparation of basing sites is beginning in Europe. However, the ultimate deployment of the systems remains in doubt. The issue remains a delicate one, the fortunes of which are tightly intertwined with progress on the U.S.-Soviet arms control front. In the wake of the Soviet invasion of Afghanistan and the ensuing deterioration in U.S.-Soviet relations, there has been little action in the arms control area. Although Chancellor Schmidt's trip to Moscow in June 1980 did lead to a revival of arms control efforts, it is not clear that the present U.S.-Soviet dialogue on theater nuclear systems will be fruitful. It is also not clear just what effect progress on arms control--or lack of it--will have on NATO's December 1979 decision to modernize its LRTNF. NATO's consensus may collapse or, what may be as bad, the political costs of keeping it alive may grow exorbitantly.

In this atmosphere, it is useful to survey the LRTNF issue once again, focusing on the benefits that LRTNF modernization realistically can be expected to provide, as well as the potential costs that may be incurred. The purpose of this paper is to assess, as objectively as possible, just what these systems do and do not do for NATO. The paper deals first with the general problems that gave rise to the issue initially, then with the political and technical forces that helped shape the December 1979 decision, and finally with the role the new systems can--and cannot--be expected to play in NATO strategy.

THE RATIONALE FOR LONG-RANGE THEATER NUCLEAR FORCE MODERNIZATION

For nearly two decades the Soviets have deployed several long-range nuclear weapon systems that could strike targets in Western Europe. The SS-4 MRBM and the SS-5 intermediate-range ballistic missile (IRBM) both appeared in the early 1960s, and about 450 of these missiles remain operational in the Western USSR. Over the same period the Soviets deployed large numbers of sea-launched cruise missiles (SLCMs) and submarine-launched ballistic missiles (SLBMs), as well as intermediate-range bombers and fighter bombers that could reach targets in Western Europe. Likewise, since the mid-1950s the

NATO nations have deployed in Europe several missile and aircraft systems capable of delivering nuclear weapons to targets in the Soviet Union. These forces currently consist of U.S. F-111s based in England; U.S. Poseidon submarines operating from Holy Loch, Scotland; U.S. and French carrier-based aircraft in the Mediterranean Sea; and the British and French "independent" strategic nuclear forces. Thus long-range nuclear forces have existed in Europe for some time. Their rise to new heights of visibility and importance in recent years was fueled by quantitative and qualitative improvements in Soviet nuclear delivery systems at both the theater and strategic levels.

At the theater level, a variety of new systems have given the Soviets significantly enhanced capabilities. With the Backfire, Fencer, and Flogger D, the Soviets have deployed relatively sophisticated aircraft that can carry nuclear weapons deep into NATO territory. And with the mobile, MIRVed SS-20 the Soviets have an IRBM force that can disperse for survivability and can be used to destroy NATO military facilities with lower collateral damage than would occur with the SS-4s and SS-5s, which are less accurate and have larger warheads. About 80 SS-20 launchers are now believed to be deployed in the Western USSR and estimates suggest that deployments may run several times higher by the late 1980s.⁷ Of all of these new systems, it has been the SS-20 that has been most instrumental in raising the salience of the theater nuclear balance in Western European and U.S. thinking.

The significance of the SS-20 stems partly from its mobility. In the past, NATO planners could target and expect to destroy most of the Soviet Union's land-based LRTNFs at the outbreak of a war in Europe. The Soviets had to use these forces or risk losing them. But the SS-20 force can be dispersed by war outbreak and thus escape an attack on its home bases. The SS-20 will give the Soviets a substantial survivable land-based missile force with which to hold Western Europe hostage during a war with NATO. (Significantly, NATO will not have the capability to destroy the withheld SS-20s even with its modernized LRTNF

⁷Annual Report, Fiscal Year 1981, Department of Defense, p. 93.

because it will not have the capability to locate mobile targets in the USSR in wartime.)

The SS-20 also is significant because its warheads have greater accuracy and lower nuclear yields than those of the SS-4s and SS-5s it will replace. Projected deployments of the SS-20 will give the Soviets more than enough capability to destroy virtually all of NATO's land-based nuclear forces and many other key military facilities in Europe in a nuclear attack that, while causing several million collateral civilian casualties, would not destroy Western Europe as the "prize of war." This raises the question of whether NATO's existing nuclear forces provide a credible deterrent to such a "limited" attack.

For an Alliance whose strategic doctrine--MC-14/3--deals primarily with deterring war rather than fighting it, and whose military planners have shown a marked reluctance to think through the problem of defense should deterrence fail, this question is unsettling, to say the least. NATO doctrine seeks to deter attacks at any level with an appropriate response at that level and with the threat to escalate to a higher level. The Soviets thus would face presumably such enormous risks that, in trying to achieve victory in Europe, they in fact would begin a process that could escalate to the level at which their nation would be destroyed, thus producing costs far exceeding the gains originally sought. NATO's deterrence doctrine presupposes a "seamless web" of response options, from theater conventional through theater nuclear all the way up to the strategic nuclear level. With the SS-20 and their improved strategic nuclear forces, it appears that the Soviets have unraveled this web.

The LRTNFs currently committed to NATO include British and U.S. nuclear-capable aircraft, the relatively small British SLBM force, and some U.S. Poseidon SLBM warheads. Only the missile-carrying submarines at sea are likely to survive a Soviet nuclear attack on Europe. Of these, it is possible that the British SLBMs may be withheld if "supreme national interest" so dictates. (The French medium bombers, SLBMs, and IRBMs are not committed to NATO at present and even if they were they might also be withheld for "national interests.") The burden of NATO's theater-nuclear response thus would fall to some

U.S. Poseidon SLBMs which, despite their formal commitment to NATO, also are U.S. central strategic systems. Europeans worry that the United States might be deterred from using these systems in fear of a subsequent Soviet nuclear response on the continental United States. Alternatively, they worry that Moscow might believe it could engage in a European theater nuclear war in which the Soviet Union would be a sanctuary.

Whether Western Europeans worry about the coupling of U.S. strategic systems to their security or about Soviet perceptions of coupling, they do so in part because the deployment of SS-20s and Backfires highlights the gap in NATO's nuclear response capabilities between essentially tactical nuclear weapons and U.S. strategic systems. NATO's existing nuclear capabilities no longer fulfill the requirements posed by MC-14/3. NATO no longer can pose a credible threat of responding to Soviet attacks at levels and by means of its own choosing. Indeed, the Soviets now appear to be in a much better position to control the escalatory process and to shift the burden of escalating the conflict to NATO. In a crisis, not to mention in a wartime situation, this is likely to have immense and ominous consequences for Alliance behavior.

But these new Soviet systems, if uncountered by NATO, are likely to have political utility extending beyond periods of crisis or war. To the extent that they increase the nuclear threat focused solely on Western Europe, they tend to highlight Western Europe's geographic proximity to the Soviet Union and the special place that Western Europe, as distinct from the United States, holds in Soviet strategy. To the extent that these new Soviet systems raise questions about coupling in the minds of Western European planners, they emphasize the presumably small but nonetheless real and bothersome possibility that ultimately West Europe may have to face the Soviet threat alone. In both cases these "Euro-strategic" systems create subtle pressures that further the long-standing Soviet drive to separate Western Europe from the United States.

LRTNF modernization is intended to solve part of this problem by giving NATO the capability to strike Soviet territory *in kind* from

European territory. This capability presumably will dissuade the Soviets from launching a "limited" nuclear attack in the first place. LRTNFs do not constitute a military counter to the SS-20; that is, they do not provide NATO with the capability to destroy the SS-20 force once it is dispersed from its home bases. But LRTNFs do provide NATO with a set of capabilities that should increase substantially the risks Soviet planners perceive as they contemplate war in Europe.

It must be emphasized, however, that LRTNF modernization solves only part of this problem. The SS-20 provokes Western European insecurities not just because it threatens NATO's existing theater nuclear forces, but also because the nature of the U.S.-Soviet strategic relationship has changed significantly in recent years. Schmidt prefaced his warning about the theater-nuclear imbalance, after all, with an equally important reference to the fact that SALT II codified the strategic balance and therefore neutralized the superpowers' strategic nuclear capabilities. Under perceived conditions of parity, many Europeans found a new reason for questioning U.S. willingness to employ essentially strategic forces in responding to a Soviet nuclear attack on Europe.

Ultimately, the United States can never expect fully to convince its NATO allies of its willingness to defend them with its strategic forces. Henry Kissinger said as much in his Brussels speech of September 1979:

The European allies should not keep asking us to multiply strategic assurances that we cannot possibly mean, or if we do mean, we should not want to execute because if we execute, we risk the destruction of civilization. Our strategic dilemma is not solved with reassurances.⁸

In a narrower sense, however, the confidence that Europeans have in U.S. security guarantees reflects to a large degree their sense of the confidence that U.S. policymakers themselves have in those guarantees. Unfortunately, the SALT II debate in the United States and the growing sense that U.S. Minuteman ICBMs will soon be vulnerable to a

⁸"NATO: The Next Thirty Years," *Survival*, November/December 1979, p. 266.

Soviet nuclear attack give the Europeans little basis for confidence that U.S. strategic forces will be available for their defense. Strategists in the United States increasingly wonder how the United States would respond if the Soviets destroyed most of the U.S. ICBM force with a fraction of its ICBM force. But strategists in Western Europe have long wondered how the United States would respond to a Soviet nuclear attack on Europe. The fact that "Minuteman vulnerability" has critical implications for NATO as well as for the United States is often overlooked. Put another way, much of the political value associated with the emerging Soviet threat to the U.S. Minuteman force lies in the Soviets' ability to create and exacerbate European misgivings about the "coupling" of U.S. nuclear forces to their security.

To be sure, the coupling issue is a delicate and murky one, a matter of European perceptions, and to some extent a matter of their perceptions of U.S. perceptions.⁹ Although it has been a perennial issue in the Alliance, for many years the perception of U.S. strategic superiority ultimately allayed European doubts about U.S. security guarantees. But now, in view of the recent growth of Soviet strategic and theater nuclear capabilities, the Alliance must face this issue directly. And it must do so without giving the Soviets reasons to doubt the existence of coupling.

⁹ One indication of this delicacy concerns the size of the LRTNF. While deployment of some LRTNFs is perceived as filling a gap in NATO's force structure, many Europeans fear that the creation of a genuine balance of LRTNFs may signal the possibility that a nuclear war could be confined to Europe alone. European fears regarding this issue were well stated by French Foreign Minister Louis de Guiringaud, as quoted in Robert Metzger and Paul Doty, "Arms Control Enters the Gray Area," *International Security*, Winter 1978/1979, pp. 23-24:

The approach based on the concept of a Euro-strategic balance implies that there can be a separate balance of nuclear capabilities assigned to the European theater, isolated from other elements of deterrence. It leads to a "decoupling" which is precisely what we are trying to avoid. In other words, it would be tantamount to recognizing that the United States' central strategic forces do not cover Western Europe.

The need to modernize NATO's LRTNF thus does not result solely from improvements in Soviet "Euro-strategic" systems like the SS-20, but arises as well from real and perceived changes in the U.S.-Soviet strategic relationship. By the same token, NATO's December 1979 decision to deploy 572 land-mobile MRBMs and GLCMs is not, and is not intended to be, the final solution to the coupling problem or the broader problems of sustaining NATO's existing doctrine. LRTNFs must be backed by U.S. strategic forces in which both U.S. and European planners have a high degree of confidence. Although LRTNF modernization is important in its own right, it is unlikely that, barring an increase in the credibility of U.S. strategic forces as part of NATO's overall strategy, LRTNFs alone will allay European doubts about U.S. security guarantees.

POLITICAL AND TECHNICAL ISSUES

To meet its LRTNF modernization objectives, NATO considered a variety of delivery systems and basing arrangements. Sea-based systems included cruise missiles launched from surface ships or attack submarines. Land-based systems included aircraft with air-launched cruise missiles (ALCMs) and air-to-surface ballistic missiles (ASBMs), mobile GLCMs and MRBMs, and silo-based MRBMs. Cost, survivability, defense penetration, target coverage, reaction time, and deployment and employment flexibility were prime among the many technical factors considered by the High Level Group. But anyone following the debate on LRTNF modernization in Europe realizes that the choice of systems and basing arrangements involved political factors as well.

Part of the political delicacy with which the issue was treated stemmed from the fact that nuclear issues are among the most divisive that NATO faces. This is especially true in Belgium, the Netherlands, and, perhaps to a slightly lesser extent, the FRG. The neutron bomb debates of 1977 exposed a deep reservoir of anti-nuclear feeling in these and other countries. Though the public outburst provoked by the LRTNF issue never reached the heights of that which occurred when the neutron bomb was under consideration, much of the same feeling went into both issues. This made LRTNF modernization an extremely volatile issue.

In the FRG, essentially political constraints on LRTNF deployment arose from the nature of its strategic situation. Under existing conditions the FRG is the most exposed and vulnerable of the NATO European states. Because most of NATO's military forces in the critical Central Region are located on its territory, the FRG would be heavily attacked by Soviet nuclear weapons at war outbreak. Not surprisingly, it was Chancellor Helmut Schmidt who issued the most visible public call for attention on the theater nuclear issue.

Yet over the past decade, West Germany's Ostpolitik has given West Germans grounds for ambivalence about LRTNF modernization. Many West Germans feel that their Ostpolitik has won them a measure of security, guaranteed access to Berlin, and freer intercourse with the East, especially with the German Democratic Republic. The FRG now enjoys a sizable trade relationship with Eastern European states and the Soviet Union. West Germans see these ties as the benefits of detente and thus feel strongly that detente should continue. Whatever their feelings about rectifying the theater nuclear imbalance, many West Germans thus felt strongly that some effort be made to solve the issue without provoking the Soviet Union and thereby endangering detente. They emphasized the need for arms control efforts before consideration was given to arms deployments. The effects of West Germany's situation could be seen in Schmidt's 1977 speech, which called for both arms control and possibly arms deployment.

Considerations of the FRG's position within the Alliance also led Schmidt to insist that new LRTNFs be deployed on more than just West German territory, including that of other continental powers. If the FRG were to act solely in conjunction with the United States in undertaking new LRTNF deployments, it might single itself out even more as a potential target, precipitating, in the event of theater conflict, precisely the military act that it wants to avoid, namely, nuclear strikes against FRG territory. Some West Germans also feel that a U.S. system on its territory would not have as much deterrent effect as one deployed in several nations.

In addition, the introduction of new LRTNFs into Germany alone would very likely have been politically destabilizing, both within the

FRG and the Alliance. Within West Germany, a deployment decision that singles out Germany as a forward base for U.S. nuclear forces that can reach the USSR and hence continues to make the FRG the primary target of a Soviet nuclear attack could have given rise to a protracted domestic debate about the correctness and the liabilities of the decision. Within the Alliance, new deployments limited to the FRG would have indicated an unwillingness of other NATO states to risk nuclear attack and possibly to aid in the defense of the FRG if they are not attacked at war outbreak. Thus Schmidt insisted on wide Alliance participation in the deployment of the system selected. At the same time, he disavowed any West German participation in operating the new systems, even under a dual-key program of cooperation (POC).¹⁰

Alongside these essentially political constraints were some of a more technical nature. Assuming the system under consideration was politically acceptable, it had to be affordable, survivable, and capable of flexible use. The decision Secretary Luns announced in December of 1979 reflected both political and technical considerations.

Because NATO was in the broadest sense looking for a "visible" counter to the SS-20, sea-based systems were not considered entirely appropriate. In any case, the sea-based systems available suffered from a variety of other flaws. SLCMs mounted on surface ships deployed in European waters would not be survivable in a nuclear war. SLCMs on board submarines, on the other hand, would not have allowed for a wide Alliance participation; only the United States and Great Britain have nuclear submarines that might carry SLCMs. Thus, NATO sought land-based rather than sea-based systems.

Among land-based options, silo basing was eliminated primarily because of its potential vulnerability, which would be much the same

¹⁰ Under a dual-key POC, the United States retains custody of the nuclear weapons and the other nation operates the delivery system. Current U.S.-FRG POCs exist for several systems, including the Pershing Ia short-range ballistic missile (SRBM). In the future, the FRG would continue to operate its Pershing Ia system while the U.S. replaces its Pershing Ia launchers with Pershing II launchers under the LRTNF modernization program.

as that facing the U.S. Minuteman force today. Moreover, no European nation wanted its territory to be a "sponge" for Soviet nuclear warheads, even if theoretical calculations indicated that a substantial number of missiles could survive a large attack. Systems launched from aircraft (ALCMs and ASBMs) were eliminated because the aircraft would probably not survive nuclear attacks on their bases. Furthermore, U.S. ALCMs and ASBMs would have been constrained by SALT II limits and counted as U.S. strategic systems, even if they were deployed in Europe. This left land-mobile missiles, which were relatively inexpensive and could satisfy the other criteria of flexible employment and wide Alliance participation. The fact that they could not survive a surprise attack on their home bases was not weighed heavily against them because NATO expects to get enough warning before the outbreak of a war in Europe to disperse and hide the missiles in covert field positions.

Among land-mobile systems, the choice of a mix of GLCMs and MRBMs (Pershing IIs), though more costly than a pure force of GLCMs, reflected a desire to take advantage of the better defense penetration potential and shorter flight times of the Pershing II plus the fact that it could be readily deployed in place of the aging Pershing Ia SRBMs in existing U.S. Army units and facilities. The bulk of the force consists of GLCMs because of their lower unit cost and greater range. The latter enables them to cover much more of the Western USSR from the United Kingdom than the Pershing II can cover from the FRG.

LONG-RANGE THEATER NUCLEAR FORCES AND NATO DOCTRINE

The primary aim of NATO doctrine is to deter an attack by making it clear to an aggressor that his attack will be met by a strong defense and might initiate escalation involving risks far out of proportion to any advantages that might be gained. Although nuclear weapons are not viewed as a substitute for conventional forces, NATO retains the option to initiate the use of nuclear weapons. With respect to nuclear war, NATO's aim is to deter Soviet use of nuclear weapons by maintaining a variety of theater and intercontinental nuclear forces and response options. In theory, these forces should enable NATO to

respond to the Soviets at any level and within any geographic area of nuclear conflict, thus deterring them across the continuum of conflict situations.

The deployment of land-based MRBMs and GLCMs fills a perceived gap in NATO's force structure and in this way sustains NATO's doctrine. These systems constitute a land-based LRTNF that can survive a Soviet nuclear attack in those scenarios in which there is time for the force to disperse from its peacetime bases. Except for the worst case of a surprise nuclear attack, it confronts the Soviets with a nuclear threat to their territory apart from U.S., British, and French "strategic" forces. In sustaining NATO's existing doctrine, however, modernized LRTNFs also inherit and possibly exacerbate some of that doctrine's flaws and shortcomings, in particular, those dealing with nuclear first-use by NATO and incentives for nuclear preemption by the Soviets.

Nuclear first-use is an essential correlate of conventional inferiority. If NATO's conventional forces are indeed inferior to those of the Warsaw Pact, NATO must maintain the threat of first-use to prevent control of the escalatory process from passing to the Warsaw Pact. In view of the enormous array of Soviet nuclear systems, it is problematic whether NATO would actually use nuclear weapons first when confronted with defeat at the conventional level. There may not be much time for decision, especially if Pact conventional forces have moved rapidly and deeply into NATO territory. As Fred Ikłé has rightly pointed out, facing the brink and under severe pressure, NATO's leadership is likely to find the question of first-use enormously disruptive.¹¹

This problem is no easier if NATO has LRTNFs. A LRTNF strike into the Soviet Union would do nothing to degrade the Soviet Union's mobile SS-20 force, and hence would leave untouched Moscow's capability to retaliate against Western Europe. The Soviets would also have large numbers of SRBMs, SLCMs, and SLBMs to use against European targets. Moreover, such a strike would be perceived as raising the risk of

¹¹"NATO's 'First Nuclear Use': A Deepening Trap?," *Strategic Review*, Winter 1980, pp. 18-23.

Soviet counterattack on U.S. territory. Having witnessed the elimination of their own sanctuary status in war in Europe, the Soviets probably would not permit the United States to remain a sanctuary. Thus the decision to initiate the use of any nuclear forces, long- or short-range, theater or strategic, will be enormously difficult for NATO.

First-use may have been credible in the era of U.S. nuclear superiority, but the strategic circumstances of that era are not likely to return. At best, the United States probably will modernize its strategic forces within limits generally perceived as preserving parity or essential equivalence, but along lines that enhance their survivability and flexibility. Under these conditions, Europeans and Americans may well feel substantially more confident about the credibility of these forces as a deterrent of a Soviet nuclear attack on the United States. But they will still debate the credibility of a doctrine that includes nuclear first-use.

This does not mean that NATO should abandon the threat of first-use from its doctrine. The Soviet perception of the possibility of NATO first-use will remain an important element in deterrence. But NATO cannot rely on its nuclear forces as a substitute for weak conventional forces. NATO must modernize and strengthen its conventional forces at least to enable them to deny the Warsaw Pact a quick conventional victory. The point here in an assessment of LRTNF utility is that nothing in the December 1979 modernization decision relieves NATO of the need to upgrade its conventional posture. Improved forces at all levels--conventional, theater-nuclear, and strategic--will be required to sustain a deterrent doctrine in the coming decade.

If new land-based LRTNFs provide no aid to the ailing doctrine of first-use, they certainly provide some credible European-based force employment options for second use, and in this lies their real deterrent value. They can be used to destroy Pact air bases, naval bases, rear-area troop concentrations, and military support facilities in the Western USSR and the non-Soviet Warsaw Pact countries. They can severely cripple the Pact's ability to fight a war in Europe. These capabilities will

exist if a war starts with a conventional attack or with a nuclear attack during a crisis wherein the missiles would have been dispersed before war outbreak. However, because the missiles cannot survive a nuclear attack while they are at their home bases, they will not enhance the deterrence of a surprise nuclear attack. In fact, if the Soviets consider using nuclear weapons at war outbreak, this missile vulnerability provides the Soviets with an additional incentive for striking before NATO goes on alert and begins to mobilize. In the heat of a crisis, pressures on Soviet decisionmakers to attempt a surprise attack may be enormous, especially if they learn that NATO is about to move its ground forces forward to their defensive positions along the inter-German border.

Because political considerations compel the deployment of land-based missiles in LRTNF modernization, NATO will have to live with the vulnerability of the missile force to a surprise attack and depend on other forces to deter this kind of attack. Given the loss of GLCMs and Pershing IIs in a theater-wide surprise nuclear attack, NATO would have essentially the same kinds of forces it has today to strike targets in the USSR. It would have to respond with its SLBMs and the rest of the U.S. strategic force. Deterrence of such an attack thus would depend on Soviet assessments of U.S. willingness to use its strategic forces in defense of Europe. Again, the need for improvements in U.S. strategic forces is apparent. Better put, NATO's December 1979 decision to modernize its LRTNFs does not relieve the United States of the need to restore its own and Western Europe's confidence in the credibility of U.S. nuclear guarantees to European security.

CONCLUSIONS

None of the foregoing arguments is meant to suggest that NATO's LRTNF modernization decision was unwarranted. There are no perfect solutions to problems of deterrence and coupling in NATO. Moreover, given the pressure Moscow's improved theater nuclear force was beginning to exert on NATO's West European members, NATO's failure to modernize its LRTNF very probably would have been more disruptive than the debate that thus far has accompanied consideration of the deploy-

ment issue. Finally, over a range of plausible scenarios, modernized LRTNFs will tend to improve NATO's nuclear posture and hence the prospects for deterrence.

Rather, the argument here is that, however useful LRTNF modernization may be, it leaves untouched other crucial problems that now face NATO. This paper has focused primarily on the critical importance of restoring confidence in U.S. strategic forces. It has touched as well on the need for improvements in NATO's conventional forces. The requirements of NATO's doctrine and the limitations of its existing capabilities make necessary substantial improvements in all of NATO's forces. In the wake of a controversial decision that seemed to place LRTNF modernization at the forefront of NATO's force improvements, it needs to be stressed that these new theater nuclear forces will neither eliminate the need for strong conventional forces nor credibly stand alone in the absence of improvements in U.S. strategic forces.

These considerations make the potential costs of NATO's LRTNF modernization especially important. In financial terms, current estimates place the 10-year life cycle cost of all 572 missiles at about 4 billion dollars. As development and production proceed, however, this figure is almost certain to rise. Perhaps more critical, the volatility of the issue in terms of the domestic politics of NATO's West European members as well as its sensitivity within the Alliance as a whole may yet raise problems that threaten NATO's unity. These essentially political costs have been contained thus far, but there remains an abiding fear that, should one or two governments begin to question the deployment decision, Alliance cohesion may begin to come apart. Under these circumstances it will be important for NATO to weigh carefully the potential benefits of LRTNF modernization, taking special account of progress made in improving other areas of NATO's force posture that may affect the perceived benefits associated with LRTNF deployment.

What NATO must avoid doing is thinking that LRTNF modernization solves its major military problems. It would be tragic indeed if NATO paid so high a price, financially or politically, for these new

systems that it could neither afford nor engineer the consensus necessary to make the other improvements that are so vital to its military posture.